

# **Part III—Responsiveness Summary**

## **1. INTRODUCTION**

The purpose of this Responsiveness Summary is to provide a clear and concise measure of: (1) which aspects or elements of the alternatives for WAG 4 the community supports, opposes, or has reservations about, and (2) general concerns about the sites and the CERCLA process at those sites. This Responsiveness Summary identifies and responds to more than 40 statements of preferences, concerns, comments, and questions received both as formal statements at three public meetings, held on August 17, 18, and 19, 1999, and as written comments in more than 10 pages of materials from at least 12 individuals and interested groups. All comments on the August 1999 Proposed Plan were considered in preparation of the ROD and this Responsiveness Summary and are included verbatim in the Administrative Record for WAG 4. The comments cover a wide range of issues, including:

1. The WAG 4 cleanup in general, specific CFA sites, and the proposed INEEL CERCLA Disposal Facility (ICDF)
2. Past disposal practices
3. Goals for public participation and education
4. The criteria used to compare alternative remedies, identify feasible cleanup methods, evaluate technologies, and ensure long-term protection to human health and the environment
5. Uncertainties associated with the CERCLA process and WAG 4 contamination, specifically.

Written comments received and formal statements made at the public meetings showed that community acceptance of the preferred alternatives, as presented in the Proposed Plan, ranges from support, to support with reservations. As documented in this Responsiveness Summary:

- The preferred alternative of Excavation, Treatment by Stabilization, and On-Site Disposal for the Pond (CFA-04) was generally supported. Commenters asked for more details on aspects of cost and technical implementation of the preferred alternative, and clarification of why phytoremediation could not be considered for this site. This information has been provided in Section 3.3.1 of this Responsiveness Summary.
- The preferred alternative of Containment for the Sewage Treatment Plant Drainfield (CFA-08) was not opposed in any comments received. At the request of several commenters, additional information describing the contaminant of concern has been provided in this Responsiveness Summary.
- The preferred alternative of Excavation, Treatment by Stabilization, and Off-INEEL Disposal for the Transformer Yard (CFA-10) was supported by public comment. Additional information on the timing of the remedial action was requested and has been provided in Section 3.3.2 of this Responsiveness Summary.

During the WAG 4 public comment period, additional questions were submitted on several subjects not related to the WAG 4 remediation, such as questions about the Advanced Mixed Waste

Treatment Facility. While these queries were not relevant to this Responsiveness Summary, additional information on these subjects is available by writing or calling:

Ann Riedesel  
Public Communications Coordinator  
BNFL Inc.  
(208) 524-8484  
[www.amwtp.com](http://www.amwtp.com) or [ariedesel@bnflinc.com](mailto:ariedesel@bnflinc.com)

Information about the Advanced Mixed Waste Treatment Project is available on the internet at <http://environment.inel.gov/wm/amwtp.cfm>.

Copies of all documents referenced in this Responsiveness Summary can be obtained by writing or calling the INEEL Community Relations Office at the address provided above. Many of the documents also are available on the internet at <http://environment.inel.gov/>.

## **2. BACKGROUND ON COMMUNITY INVOLVEMENT**

The Proposed Plan for WAG 4 was released in August 1999. During the 30-day public comment period, three public meetings were held, in Idaho Falls, Boise, and Moscow. The comment period was extended an additional 30 days in response to requests from members of the public. All written comments received before the close of the comment periods, and oral comments made during the formal comment session of each public meeting, are responded to by the Agencies in this Responsiveness Summary.

Each public meeting included an informal question-and-answer session as well as the formal public comment session. The meeting format was described in published announcements and meeting attendees were reminded of the format at the beginning of each meeting. The informal question-and-answer session was designed to provide immediate responses to the public's questions and concerns. Several questions were answered during the informal question-and-answer periods during the public meetings on the Proposed Plan. This Responsiveness Summary does not attempt to summarize or respond to issues and concerns raised during that part of the public meeting. However, written transcripts of the meetings capture the presentations and informal questions and answers for members of the public that were unable to attend the meeting. The transcripts are included in the Administrative Record for WAG 4 and can be found at:

INEEL Technical Library  
DOE Public Reading Room  
1776 Science Center Drive  
Idaho Falls, ID 83415  
(208) 529-1185

Albertsons Library  
Boise State University  
1910 University Drive  
Boise, ID 83725  
(208) 385-1621

University of Idaho Library  
University of Idaho Campus  
434 2<sup>nd</sup> Street  
Moscow, ID 83843  
(208) 885-6344

An electronic copy of the Administrative Record is available on the internet at <http://ar.inel.gov>.

### **3. SUMMARY OF COMMENTS RECEIVED DURING PUBLIC COMMENT PERIOD**

The public comment period for WAG 4 Proposed Plan (DOE-ID 1999c) began on August 5, 1999 ended October 4, 1999. Public meetings on the WAG 4 Proposed Plan were conducted in Idaho Falls on August 17, Boise on August 18, and Moscow on August 19, 1999. Written comments and the meeting transcripts are available in the three INEEL information repositories listed in Section 2 as part of the Administrative Record for the WAG 4 Comprehensive RI/FS.

Five members of the public provided oral comments on the Proposed Plan during the August public meetings. Eight groups or members of the public provided written comments. The thirteen comments and questions received during the public comment period have been summarized into succinct statements to capture the significant issue discussed or information requested and assigned individual numbers. The summaries were then grouped by topics and responses were prepared.

Table 1 identifies the members of the public who provided comments and their affiliation, if any. It also shows the alphanumeric designation given to their comments. Written comments are numbered W1 through W7 corresponding with the seven individual commenters or commenting groups who submitted them. Oral comments transcribed during the formal comment sessions of the public meetings are numbered according to the location of the meetings and the commenter (IF1 and IF2 from the Idaho Falls meeting; B1 and B2 from the Boise public meeting; and M1 from the Moscow public meeting).

Comments were further subdivided by identifying a numbering individual issues contained in the thirteen oral or written comments. Appendix A contains the original comments in their entirety, either as scanned written submissions or as public meeting formal comment period transcripts. It also contains a table showing the numbering system for the individual issues and the respective response number.

The Responsiveness Summary begins with a group of questions and comments on INEEL environmental remediation goals, the community relations process, and the budget and planning process for CFA remediation. The second group of questions and comments concerns the comprehensive remedial investigation and feasibility study (RI/FS) and the activities carried out during this process. The third group of questions and comments focuses on the individual sites retained for remedial action under this ROD, their descriptions, and the alternatives developed and evaluated for them. The final group covers tangential but significant concerns that some commenters felt were related to CFA remediation. Within the first three groups of questions and comments, issues are presented in an order parallel to the development of topics in the Proposed Plan. A total of 36 issues or topics are identified in this summary.

## **3.1 WAG 4 Cleanup and Public Participation**

### **3.1.1 General Comments on WAG 4 Cleanup**

1. A commenting group expressed support for the use of disposal and remediation actions that are technically appropriate and cost-effective. [W6-3] Another commenter expressed a low opinion of DOE's scientific and technical standards, and asked why better and more efficient cleanup technologies aren't used. [IF2-1]

**Response:** The remedial alternatives described in the Proposed Plan were selected from the range of technologies demonstrated to be effective for sites with similar contaminants and media. Preference was given to technologies that have been demonstrated at the

**Table 3-1. Oral and written comments for the WAG 4 Proposed Plan.**

Commenter Name	Affiliation or Organization (if provided)	City and State	Document Number Assigned	Number of Comments Identified
Paul Randolph		Sun Valley, ID	W1	1
Charles M. Rice	INEEL Citizens Advisory Board	Idaho Falls, ID	W2	1
George Marriott		Rigby, ID	W3	3
Jared Newman	ONYX Environmental Services	Garden City, ID	W4	3
Warren Adler		Jackson Hole, WY	W5	1
John C. Commander	Coalition 21	Idaho Falls, ID	W6	3
Charles M. Rice	INEEL Citizens Advisory Board	Idaho Falls, ID	W7	4
Beatrice Brailsford	Snake River Alliance		W8	11
Beatrice Brailsford	Snake River Alliance	Idaho Falls, ID public meeting	IF1	5
Vaughn Nebeker		Idaho Falls, ID public meeting	IF2	1
Steve Hopkins		Boise, ID public meeting	B1	4
Pam Allister		Boise, ID public meeting	B2	8
Chuck Broschious		Moscow, ID public meeting	M1	1

INEEL. Innovative and emerging technologies that have been demonstrated at a pilot-scale or greater also were considered.

Each category of possible remedial actions (e.g., containment; removal and disposal; removal, treatment, and disposal) includes many potential technologies. The WAG 4 feasibility study considered only those technologies that met or exceeded the criteria of effectiveness, implementability, and cost. Also considered for each potential technology are: potential impacts to human health and the environment during implementation; whether the technology has proven its reliability; whether the required permits can be obtained; whether treatment, storage, and disposal services are fully available; and the range of equipment and personnel that are required.

Cleanup activities conducted under CERCLA must be cost-effective. Cost-effectiveness is determined by evaluating three of the five balancing criteria that determine overall effectiveness: long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; and short-term effectiveness. A remedy is considered to be cost-effective if its costs are proportional to its overall effectiveness.

2. A commenting group expressed approval that the technical feasibility of the Proposed Plan alternatives seems straightforward. [W8-1]

**Response:** Thank you. The feasibility of an alternative is determined by the application of three criteria: effectiveness (short-term and long-term), implementability, and cost. The preferred alternatives meet these criteria and this information was communicated in the Proposed Plan.

3. A commenting group noted that the term "interim action" is defined under CERCLA as "any action that will not result in full remediation." However, the group emphasized that proposed remedial actions should constitute final remedies for the contamination sources they are designed to address. The group wrote that it has repeatedly expressed frustration at cleanup efforts that must be repeated, at great cost to taxpayers, because prior efforts were incomplete. All remedial actions taken at WAG 4 should completely and finally address the contamination present to avoid a need for follow-on remediation. [W7-1]

**Response:** As explained in Parts I and II, this ROD is now called the Comprehensive ROD. The selected remedies described in the Proposed Plan constitute final remedies for the three sites with surface contamination as well as no action sites that require institutional controls.

4. A commenter noted that it seems irrational that DOE dumped powdered waste containing mercury on the surface but buried less hazardous construction materials. The general DOE rationale for past disposal practices was questioned. [IF1-5]

**Response:** Although DOE's past waste treatment, storage, and disposal practices were considered acceptable at the time, some practices led to the release of contaminants to the environment. As a result, DOE developed its environmental restoration program in 1989 to identify and, where necessary, clean up releases from past activities. In addition, a waste management program was developed to safely treat, store, and dispose of DOE waste generated by current and planned activities in an environmentally and economically sound manner.

### 3.1.2 Public Participation and Community Relations

5. A resident of Jackson Hole, Wyoming, commented on concerns in his region about the INEEL's general safety record and, specifically, whether there were real dangers to human health. He asked for information about the INEEL's recent environmental safety record and about cancer rates around the INEEL in comparison to other areas. He expressed concern about public ignorance of scientific issues which he feels lead to unwarranted distrust of the government. The commenter would like to learn more himself as well as to be able to better discuss issues with neighbors. [W5-1]

**Response:** The INEEL Health Effects Subcommittee is comprised of approximately 12 members from the public, the State of Idaho, the Shoshone-Bannock tribe, and other interest lay persons. They are tracking an INEEL Dose Reconstruction project that is being conducted by the National Center for Environmental Health of the Centers for Disease Control and Prevention. The purpose of this project is to assess human health effects from potential exposure to chemicals from the INEEL. The due date for the project report has not been established, but it is anticipated to be complete in the 1 to 2 year time-frame. Additionally, your comment was forwarded to the Community Relations Office to provide you with more information. The phone number is (208) 526-7400.

6. A commenter charged that DOE's public documents, in a pattern too consistent to be other than intentional, omit facts about the true extent of problems, which can then only be found through research into the Administrative Record. The commenter expressed disappointment that the regulatory agencies do not use their review of these documents to require that more extensive data be presented. [M1-1]

**Response:** Data that are salient to the remedial alternative evaluation and selection process are never intentionally omitted. The Proposed Plan is a summary of those sites at CFA where remedial action is required to protect human health and the environment from risks posed by past releases of contamination. It is based on the comprehensive RI/FS for WAG 4. The Proposed Plan is intended to be a high level document that summarizes the most important data that lead to a selected remedy; it is not intended to repeat all the data provided in the baseline documents. The Agencies believe that the Proposed Plan issued in August 1999 adequately summarizes the information in the comprehensive RI/FS.

7. A commenting group and an individual commenter appreciated the willingness of the INEEL to extend the original 30-day comment period. [W2-1, B2-7]

**Response:** The Agencies appreciate the public's interest and participation in the public comment period and were pleased to extend the comment period to allow the public ample time to prepare their comments.

8. Several commenters took issue with the Proposed Plan's statement that the INEEL contamination resulted from research activities. One commenter stated that this is a euphemism for what was really nuclear weapons work. [B1-1] The majority of contamination, certainly the most perilous, wrote a commenting group, came from weapons production activities. [W8-2, B2-8]

**Response:** The Agencies thank you for your input and will consider whether to discuss past and present defense-related activities as a source of contamination at the INEEL in future documents.

While the INEEL will most likely continue to support national defense initiatives, its present mission is to develop and transfer advanced engineering technology and systems to private industry to improve the competitiveness and security of the nation.

9. A commenting group urged public involvement in setting the waste acceptance criteria for the INEEL CERCLA Disposal Facility (ICDF). [W8-10] A commenter concerned about the waste acceptance criteria for disposal on the INEEL urged that there be public involvement in establishing the ICDF waste acceptance criteria. [B2-5]

**Response:** The Agencies signed a ROD for the Idaho Nuclear Technology and Engineering Center (INTEC; formerly the Idaho Chemical Processing Plant) on October 11, 1999. A major component of the ROD is the construction of the ICDF. The facility will be used to consolidate radioactively contaminated soil and debris from the INTEC and other areas on the INEEL. As described in Part II, Section 12.1.1 and 12.1.3, of this ROD, some materials from CFA are anticipated to be disposed of at the ICDF.

The development of the ICDF itself is part of the remedial design/remedial actions at WAG 3 at the INTEC. DOE has committed to hold at least one public meeting during the WAG 3 remedial design process to solicit input on the ICDF waste acceptance criteria. Questions about the ICDF can be directed to the INEEL Community Relations Office at (208) 526-4700 or (800) 708-2680.

10. A commenting group asked that the INEEL continue to hold briefings or meetings on all cleanup activities, progress, and problems. The group recommended quarterly briefings. [W8-11]

**Response:** The Agencies encourage citizen involvement in decision-making at the INEEL. Public meetings held in connection with Proposed Plans for cleanup are one of many avenues for public involvement. Other avenues include briefings and tours. Postal addresses, telephone numbers, e-mail addresses, and internet site addresses are provided in all informational materials published by the INEEL. Citizens can contact INEEL representatives through these means to get additional information, briefings, or tours from Agency and project representatives. The range of activities that the public can participate in is described in the *INEEL Community Relations Plan* (May 1995) available from the INEEL Community Relations Office (208) 526-4700 or (800) 708-2680.

### 3.1.3 Content and Organization of the Proposed Plan

11. A commenter thought that including cancer-causing elements, toxic chemicals, and risks from lead in Table 1 was confusing. Given the different kinds of uptake criteria, the commenter said, these risks could not easily be evaluated individually when the data were combined. An expanded table, or the addition of separate multiple tables, was recommended. [B2-1]

**Response:** The comment is noted and appreciated and will be relayed to future Proposed Plan writers. The table design was an effort to present the three types of data together.



### 3.1.4 WAG 4 Remediation Planning and Costs

12. A commenter referring to the \$18 million estimated cost to clean up the CFA, called it exorbitant, and wrote that this money should instead be spent at the INTEC. The commenter noted that these public tax dollars should be spent wisely. [W3-1]

**Response:** The federal government has an obligation to clean up all contamination resulting from its past activities that pose a significant risk to human health or the environment. One of the purposes of doing risk assessment is to determine which sites create risk as defined by CERCLA. The three sites to be remediated at CFA have been determined to pose an unacceptable risk to human health.

Cost estimates for the alternatives analyzed during the WAG 4 feasibility study were developed for comparison purposes only. The estimates were developed on the basis of a preliminary conceptual design. Many specific details of the alternatives are not well defined at this time and cannot be included in the estimates. Instead, these details are accounted for as a contingency cost element in each estimate. The cost estimates most likely do not reflect the actual cost of implementing an alternative. Actual project expenditures will likely be less than the cost estimates in the Proposed Plan. As the project design is finalized, the cost estimates will be refined.

More information about DOE's strategies to improve efficiency and cost saving can be found in Accelerating Cleanup: Paths to Closure (June 1998) (available from the INEEL Community Relations Office, (208) 526-4700 or (800) 708-2680, or on the internet at <http://www.em.doe.gov/closure/final/index.html>).

13. Several commenters suggested that the assumption of a one-time disposal fee is optimistic and probably has more to do with INEEL's budget than with taxpayer costs. Does this cost estimate assumption hide additional costs for use of the ICDF? [IF1-3, W8-9]

**Response:** Typically, disposal facilities charge a one-time fee. The off-INEEL disposal costs were determined by the existing contract between the INEEL and a representative off-INEEL disposal facility. The tippage fee is calculated through determining what the landfill will cost to build and maintain over its lifespan and then dividing that dollar amount by the amount of material that can be disposed of in the landfill. The fee paid to dump each truckload of waste is a portion of the landfill's lifetime cost.

As with the individual using the local landfill, the INEEL must pay to dispose of wastes at off-INEEL facilities. However, no fee is paid for facilities on the INEEL. This is because facilities on the INEEL are funded under a separate line item within the budget.

The Agencies realize that it is difficult to compare two alternatives when one includes a tippage fee and the other does not. If WAG 3 were to charge other INEEL users for the ICDF, the tippage fee would be approximately \$104 per cubic yard. The tippage fee for off-INEEL disposal is approximately \$300 per cubic yard. The off-INEEL disposal fee is based existing contract between the INEEL and a representative off-INEEL disposal facility.

14. One commenter stated that the Proposed Plan has a lot of fat in it. The commenter recommended that a panel of experts evaluate this project. [W3-3]

**Response:** The cost estimates provided in the Proposed Plan are rough estimates given for the purpose of comparing the remedial alternatives. As the project continues, the known factors increase, the unknowns and uncertainties decrease, and the cost estimate becomes more specific to the project. During the design phase, as schedules and specifications are developed, the cost estimates will become more precise.

The cost estimates are prepared by professional cost estimators with education and experience comparable to that of professionals in the private sector. Cost estimates for DOE sites must include worker health and safety concerns related to radiologic concerns that are not required in the private sector. (The INEEL's Cost Estimating Guide contains more information about DOE's cost estimating process. It is available at [www.inel.gov/capabilities/cost-estimating/eindex.html](http://www.inel.gov/capabilities/cost-estimating/eindex.html) on the Internet.)

15. Several comments dealt with the relationship between RCRA and CERCLA. One commenter questioned whether the distinction between a RCRA landfill and a CERCLA (Superfund) cleanup site is related to the number of years, or other concerns. [IF1-1] A commenting group asked for clarification about how the various waste classification types are disposed of. Are the classifications made in terms of physical, chemical, legal, or political characteristics? Why is decontamination waste accepted for placement in the Radioactive Waste Management Complex (RWMC), but not environmental restoration waste? How do waste types accepted for the RWMC or proposed for the INEEL CERCLA Disposal Facility (ICDF) differ from those going to the Waste Experimental Reduction Facility (WERF)? [W8-3]

**Response:** Both RCRA and CERCLA establish comprehensive regulatory frameworks to protect human health and the environment from environmental contamination. However, CERCLA is the more comprehensive statute. The principal distinction between the two programs is that RCRA authorizes the safe and protective *current* and *future* management of wastes, while CERCLA authorizes cleanup responses whenever there has been a *past* release of wastes. The literature on RCRA and CERCLA is extensive, and this response can only address the points raised by the WAG 4 public comments. (More information about RCRA is available at <http://www.epa.gov/epaoswer/general/orientat/> on the Internet. Information about CERCLA is available at <http://www.epa.gov/superfund/whatis/f/cercla.htm> on the Internet.)

The term hazardous waste is defined under RCRA regulations as a waste with physical and/or chemical properties that make it dangerous to, or capable of having a harmful effect on, human health or the environment. Classification of waste types is a complicated process and has resulted in a large number of defined categories of waste, some of which are present at the INEEL (more information about the waste types can be found at <http://environment.inel.gov/tsd.cfm> on the Internet. The amount, status, and handling of the waste types are summarized in the INEEL Annual Reports available on the Internet at [http://www.inel.gov/environment/annual\\_reports/index.html](http://www.inel.gov/environment/annual_reports/index.html)).

Hazardous substances covered under CERCLA include all RCRA hazardous wastes as well as toxic pollutants addressed by other regulations. In general, contamination that contains radionuclides is covered by CERCLA but not RCRA, and petroleum/natural gas

products are covered by RCRA but not CERCLA. CERCLA requires that on-INEEL remedies meet any legally applicable or relevant and appropriate requirements (ARARs), including RCRA, unless site-specific waivers are obtained. When hazardous wastes are transported off a CERCLA site, they are subject to full RCRA regulation: all transportation and treatment, storage, and disposal requirements under RCRA must be followed. This ensures that wastes resulting from a CERCLA activity are sent to environmentally sound waste management facilities.

Low-level waste is defined as radioactive waste that is not high-level waste, transuranic waste, spent nuclear fuel, or by-product material. Mixed low-level waste contains both hazardous materials and low-level radioactive components.

The RWMC can not accept mixed waste. The ICDF, which is part of the remedial design/remedial actions at WAG 3 at the INTEC, is planned to be a facility that can consolidate low-level waste from several areas on the INEEL, including the CFA. It will also be able to receive low-level mixed waste. A description of the proposed ICDF is contained in the ROD for WAG 3 (available from the INEEL Community Relations Office (208) 526-4700 or (800) 708-2680 or at <http://environment.inel.gov/er/erplans.htm> on the Internet.) As planned, the soil repository will be an engineered facility meeting state and federal design and construction requirements, including the RCRA requirements.

16. A commenter would like more information on disposal costs for facilities off the INEEL and the factors that lead to variability in those costs. [B2-6]

**Response:** Cost estimates are based on an existing contract with a representative off-INEEL disposal facility. The cost estimates for disposal of waste at facilities include:

- a. How a material has to be handled to prepare it for shipment (whether it must be in barrels, bags, or other containers)
- b. The waste media involved (e.g., liquid, solid, sludge)
- c. Characterization before the waste is shipped
- d. Distance from the INEEL, and whether a special route must be followed
- e. Tipping fees charged by the disposal facility
- f. Characterization required to be conducted by the receiving facility
- g. Transportation of any residuals (such as ash) back to the INEEL (including containers in which it is shipped, the waste media, special transportation routes, and characterization upon its return)
- h. Legal, procurement, and subcontracting documentation.

## 3.2 The CERCLA Process at WAG 4

### 3.2.1 Risk Assessment

17. A commenter expressed concern about worker health and safety, and asked why the current occupational scenario was not included in the Proposed Plan. [B2-2] A commenting group wrote that it was not clear why only future occupational health risks were considered in Table 1. Do future occupational risks pose current occupational risks as well? [W8-4]

**Response:** The current occupational scenario was included in the baseline risk assessment conducted as part of the comprehensive RI/FS. Risk assessment results for the current occupational scenario were not provided as a separate column in Table 1 of the Proposed Plan because risks that exceed threshold levels are managed to ensure worker health and safety (see footnote (b) in Table 1). Worker safety is a high priority at the INEEL for all operations. Safeguards used at the INEEL to ensure worker health and safety include engineered barriers, robotics, and personal protective equipment.

18. A commenting group believed the risk assessments were very inaccurate. The group stated that the risk assessments are based on the linear non-threshold theory, which has no scientific basis. [W6-1]

**Response:** Risk assessments at CERCLA sites are conducted following EPA guidance which directs use of the linear non-threshold theory. While some deviation from the guidelines is allowed based on the type of site and what contaminants are present, the baseline risk assessments typically follow these guidelines closely. Generally, the EPA guidelines produce a risk assessment that is very conservative: that is, the risk assessment tends to overestimate the risks and hazards at a site. This provides an extra level of protection for the health and safety of humans and the environment.

19. A commenting group would like information on when the future occupational scenario begins. [W8-5]

**Response:** For purposes of the risk assessment, the future occupational scenario period begins in 100 years (the year 2095) and lasts for 25 years (through the year 2120).

20. A commenting group did not understand why cumulative excess cancer risk for uranium-238 and arsenic was collapsed into one cell in Table 1. [W8-6]

**Response:** Table 1 in the Proposed Plan is a summary the results of the human health risk assessment. The information follows the guidelines set by EPA for Superfund sites. At each site, the exposure routes for each contaminant of concern are calculated and summed, and then the sums of all the contaminants are added together to find the total risk or hazard at the site. The results are presented in Table 1 of the Proposed Plan. This method not only provides the most conservative estimate of risk, but also permits comparisons between sites in each WAG and between WAGs.

### 3.2.2 Evaluation Criteria and Process

21. A commenter expressed approval that DOE is using the best currently available technology, rather than using experimental techniques. [B1-2]

**Response:** Thank you. The types of contaminants at the three sites requiring remediation are readily addressed by available technology, therefore no experimentation is required.

22. A commenting group disagreed with the general approach to remediation that leaves in place contaminants that are deeper than 10 feet below the surface. The group concluded this merely gives the contaminants a head start toward the Snake River Plain Aquifer. [W8-7, IF1-4]

**Response:** The depth of 10 feet below ground surface is used to evaluate contamination for a residential scenario in which a basement might be constructed. Contaminants at depths greater than 10 feet are inaccessible to residential receptors. Unless there is a groundwater risk from subsurface contamination, mitigative measures are not considered.

23. Several commenters disagreed with the use of the word “containment” for alternatives involving covers, since the covers are open at the bottom, the side nearest the aquifer. They contended that, although this technology prevents contamination from migrating upward, it fails to prevent migration of contaminants downward. [W8-8] One commenter also noted, however, that the containment cover described is better designed than those recommended for other INEEL remediation activities. [B1-4, B2-3]

**Response:** The comprehensive RI/FS determined that contamination at the three WAG 4 sites does not threaten the aquifer. As used by CERCLA, the term containment refers to the ability of a constructed barrier to prevent migration of contaminants along a pathway that results in exposure to human or environmental receptors. For example, if a contaminant poses a human health risk when it is inhaled, the barrier must prevent it from reaching the air.

The INEEL uses several types of containment barriers, each designed to meet the specific requirements of a contamination site. Containment with an engineered barrier is the preferred alternative only for the drainfield because it will break the exposure pathways of external radiation exposure, thus protecting human health and the environment. Groundwater simulation conducted as part of the RI/FS predicted that Cs-137, the COC at CFA-08, would not impact the Snake River Plain Aquifer above risk-based concentrations. Therefore, the cap effectively “contains” Cs-137 from the only viable exposure route, external exposure. Additionally, an evapotranspiration cover will minimize infiltration at the drainfield. (More information about engineered barrier designs evaluated in the WAG 4 feasibility study can be found in “Evaluation of Engineered Barriers for Closure Cover of the RWMC SDA” [J. F. Keck et al. January 1992] available in the Administrative Record.)

24. A commenting group supported the concept of a single, on-INEEL low-level waste disposal facility to be located at the Idaho Nuclear Technology and Engineering Center (INTEC; formerly the Idaho Chemical Processing Plant). [W6-2]

**Response:** The Agencies welcome public support of the concept of an On-INEEL disposal facility to be located at INTEC. As described in Part II, Sections 12.1.1 and 12.1.3 of this ROD some materials from CFA are anticipated to be disposed at the ICDF. The development of the ICDF is itself part of the remedial design/remedial actions at WAG 3 at the INTEC.

A description of the proposed ICDF is contained in the ROD for WAG 3 (available from the INEEL Community Relations Office (208) 526-4700 or (800) 708-2680 or at <http://environment.inel.gov/er/erplans.htm> on the internet). It will be used to consolidate radioactively contaminated soil and debris from INTEC and other areas on the INEEL. Containment in an engineered facility with a liner to prevent leaching and a cap to keep out moisture will significantly reduce the threat to the Snake River Plain Aquifer, protect human health and the environment, and improve DOE's ability to effectively manage the contamination. As planned, the soil repository will meet state and federal design and construction requirements, including the RCRA hazardous waste management requirements.

The decision to locate a repository at the INEEL was driven by cost and benefits. The cost for sending the large volume of waste to a commercial off-INEEL disposal facility, including costs to transport, treat, and dispose of contaminated soil, would be extremely large, compared to the benefits to be gained. DOE estimates that locating a repository on-INEEL will save taxpayers \$377 million over the cost of shipping the contaminated soil to an off-INEEL disposal facility.

25. A commenter urged that remediation be selected when it is cheaper than monitoring. [B1-3]

**Response:** Environmental remedial options are not based solely on cost. A cleanup treatment must satisfy the two threshold criteria used in CERCLA based evaluations of remedial alternatives — overall protection of human health and the environment, and compliance with applicable or relevant and appropriate requirements (ARARS) — before being ranked according to the five major balancing criteria, one of which is cost.

Monitoring without remedial action, though cheaper than the other alternatives, was determined not to be protective of human health or the environment.

### 3.3 Release Sites/Groups at WAG 4

#### 3.3.1 Pond (CFA-04)

26. A commenter asked for more detail about the cost estimates for Alternatives 3a and 3b. Specifically, why was there such a disparity in costs between Alternatives 3a and 3b? Was the entire scope of work considered in both cost estimates? Could the off-INEEL option have been overestimated? Is it possible to send just the soils containing RCRA-listed waste off-INEEL, and dispose of the remaining waste on-INEEL? [W4-1]

**Response:** The estimated cost differences between Alternatives 3a and 3b primarily arise from the costs of both transporting soils to and disposing of the soils at an EPA-approved off-INEEL disposal facility. The estimates were based on cost information from such a

facility. As the project design is developed and the design parameters are finalized, the alternatives may be modified. Modifications may include alternate disposal sites.

Many of the operational aspects of the selected alternatives are not finalized, but will be defined more specifically during the design phase of the project. Stabilization of waste at the pond would meet all ARARs listed in Part II, Section 13 of this ROD, including state of Idaho requirements for fugitive dust emissions.

27. A commenter stated that his professional experience leads him to question the preference of Alternative 3a, given that it has operational and cost disadvantages compared to other alternatives. [W4-1] The commenter listed the following items for specific discussion:
- a. The requirement of substantial mixing and material setup time to allow for proper treatment.
  - b. The requirement of more personnel and equipment for a much longer period of time.
  - c. The requirement for more preparations and logistics.

The esthetic problem associated with high-volume unloading and mixing of Portland cement. The small particle size of the cement could lead to a continuous, large white cloud.

Controlling this could be expensive and/or difficult due to the INEEL's typically windy conditions.

**Response:** As presented in the Proposed Plan, alternative 3a is the least expensive of the three action alternatives considered for the Pond. Treatment of the excavated soils must be conducted in accordance with all applicable or relevant and appropriate requirements (ARARs), including those applying to fugitive dust emissions. (A complete list of ARARs that must be met for this project is contained in Part II, Section 13, of this ROD.) All treatment will be conducted in a manner to ensure the health and safety of workers and the environment.

28. A commenter felt that an easier and less expensive alternative for the pond contamination would be to dig it up and ship it off-INEEL. The commenter argued that the large volume of material would lead to price reductions. [W4-3]

**Response:** Cost estimates for off-INEEL disposal of waste excavated from the pond show that the additional shipping and transportation expenses would drive the cost of Alternative 3b to an estimated \$12.8 million—nearly double the \$6.7 million estimated for Alternative 3a.

29. A commenting group stated that the cost estimate for Alternative 4 seemed very high. The group suggested that phytoremediation could be a less costly alternative, and asked why it was ruled out as an alternative technology. [W7-2]

**Response:** Phytoremediation uses plants to extract contaminants from the soil. Contaminants generally are incorporated into the biomass (the plant). At the end of the

growing season, the aboveground portion of the plant is collected and incinerated. The residual waste (ash) is stabilized and disposed of in a suitable landfill.

The cost-effectiveness and technical implementability of phytoremediation are very site-specific. Factors that affect whether phytoremediation is the best overall choice for a site include type of contaminants, concentration level, depth to which they are present, types of plants that will uptake the contaminants, and the need for additional management of plants. For instance, it is best used for contaminants that are within the upper 3 feet of soil, within the root zones of the plants used. Plants may require additional irrigation and soil amendments for optimal uptake. Treatability studies must be conducted to select the best plant species, determine contaminant extraction rates and costs, measure increased contaminant leaching due to irrigation, and other concerns.

Phytoremediation has been identified for use at the following INEEL sites:

- The Mercury Spill Area (TSF-08) in WAG 1. A phytoremediation treatability study will be conducted at the Mercury Spill Area to evaluate plant uptake factors and rates. That area is contaminated with mercury concentrations at 73.7 mg/kg to at least 2.5 feet below ground surface. (More information can be found in the Proposed Plan for WAG 1, available from the INEEL Community Relations Office, (208) 526-4700 or (800) 708-2680.)
- Five sites at Argonne National Laboratory – West (ANL-W; WAG 9). Mercury contamination at the ANL-W sites ranges from 2.62 to 8.83 mg/kg, and is limited to 2 feet below ground surface. The remediation goal for mercury at the ANL-W sites is 0.74 mg/kg. (More information is available in the WAG 9 ROD, available from the INEEL Community Relations Office.)

Mercury contamination exists in the pond bottom at areas with uneven soil thickness, which would make successful growth of the plants difficult. Also, mercury was detected at a maximum concentration of 439 mg/kg at the pond compared to 73.7 mg/kg at the WAG 1 Mercury Spill Area (TSF-08) and a maximum of 8.83 mg/kg at the WAG 9 ANL-W site. To reach the final remediation goal of 0.5 mg/kg would potentially require much more time for the CFA-04 Pond soil. Therefore, implementability of phytoremediation for the pond was determined to be low to uncertain, and the technology was screened from further consideration during the feasibility study.

### 3.3.2 Sewage Treatment Plant Drainfield (CFA-08)

30. A commenter who worked at the CFA for many years questioned how the residue from the low-level contaminants in the hot laundry wastewater could have resulted in such a large cleanup cost. [W3-2]

**Response:** The commenter is correct in believing that very low concentrations of radionuclides were disposed of in large volumes over a long period of time at the drainfield. However, the contamination was spread out over a very large area (approximately 200 by 1,000 feet). The residues remain in the approximately 40,000 linear feet of gravel-filled trenches. The cost to cleanup the drainfield is in direct proportion to the size of the contaminated area – approximately 74,000 cubic yards.



31. A commenting group noted that, in approximately 189 years, the risks from cesium-137 contamination at the site would decrease to a level below the human health risk threshold. However, according to Table 5, cesium-137 has a half-life of 30 years, which leads to a conclusion that the cesium-137 would decay to acceptable levels in 90 years rather than 189 years. The commenting group asked why it would take 189 years to achieve acceptable risk-based levels. [W7-3]

**Response:** A preliminary remediation goal, or PRG, is a quantitative cleanup level. PRGs are used in planning remedial actions and assessing the effectiveness of remedial alternatives. The maximum concentration of Cs-137 detected at the drainfield was 180 pCi/g. It is this concentration that would require 189 years to decay to the acceptable value of 2.3 pCi/g for residential use.

### 3.3.3 Transformer Yard (CFA-10)

32. The addition of items for information purposes throughout the text (marked with an "info" icon) was praised, with one exception. A commenting group felt that the text located under the info icon on page 20 raised unnecessary public concerns related to polychlorinated biphenyls (PCBs), particularly given the very low level of PCBs detected at WAG 4. The group stated that this info icon, in particular, was alarmist and served no purpose. [W7-4]

**Response:** A Proposed Plan is a "brief summary . . . of the RI/FS" (OSWER Directive 9355.3-02, Section 1.2.6). The Transformer Yard (CFA-10) is a fenced yard with a concrete pad that was used infrequently from 1985 to 1990 to store transformers. The area was originally named the "Transformer Yard Oil Spills" because PCB contamination from the transformers was suspected to be present. Although PCB levels were determined to be well within the threshold for industrial sites, the name was retained (with the deletion of "Oil Spills" for consistency). The sidebar discussion was appropriate to include in the Proposed Plan to acknowledge the original suspicions and inform stakeholders of the minor change in name.

33. While approving of off-INEEL disposal and the INEEL's rapid progress toward cleanup, a commenter questioned whether the selection of off-INEEL disposal was the result of expedience or strictly environmental considerations. [B2-4]

**Response:** The Agencies believe that the selected alternative, Excavation, Treatment, and Off-INEEL Disposal, remains the most appropriate remedial action for the CFA-10 Transformer Yard soil. As stated in the Proposed Plan, it was selected because the site could be remediated within 15 months after signing this ROD. It provides the best balance of trade-offs among alternatives in terms of the five balancing criteria (long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; and short-term effectiveness; implementability; and cost). It is cost-effective, because its costs are proportional to its overall effectiveness. Furthermore, it provides the best balance of trade-offs among alternative because it emphasizes long-term effectiveness and reduction of toxicity, mobility, or volume through treatment. Finally, selection of this alternative meets DOE's mission of completing cleanup activities as quickly as possible.

## 3.4 Other Issues

### 3.4.1 The Snake River Plain Aquifer/Groundwater

34. A commenting group disagreed with the general approach to remediation that leaves in place contaminants that are deeper than 10 feet below the surface. [W8-7, IF1-4]

**Response:** The depth of 10 feet below ground surface is used to evaluate contamination for a residential scenario in which a basement might be constructed. Under this scenario, residents could potentially be exposed to excavated soil. Contamination is only left in place below 10 feet in situations where groundwater modeling indicates that the contaminants and/or the concentrations will not impact the aquifer above risk-based concentrations or maximum contaminant levels.

35. A commenter reiterated that his chief concern is that contamination be removed from over the aquifer before it is too late – assuming it is not. [W1-1]

**Response:** Groundwater modeling conducted as part of the Comprehensive RI/FS indicated that the WAG 4 release sites and tank sites do not constitute an unacceptable risk to the Snake River Plain Aquifer, approximately 500 feet below the ground surface. As part of the remedy for the OU 4-12 Landfills, groundwater monitoring has been conducted for 4 years and will be conducted for 26 more years to detect potential impacts to the aquifer.

### 3.4.2 INEEL CERCLA Disposal Facility

36. A commenting group contended that this Proposed Plan, like those from other waste area groups, selected remedial actions that require on-INEEL disposal at the proposed ICDF, and that this commitment to a facility that has not yet received public review and community acceptance is in violation of the CERCLA process. The Agencies have created a de facto approval process for an over-the-aquifer facility that the public would not accept. [IF1-2, W8-10]

**Response:** The Agencies have followed all CERCLA requirements in regard to the ICDF. The ICDF was identified in the Proposed Plan for WAG 3 (the INTEC; formerly the Idaho Chemical Processing Plant), and all relevant documentation on the ICDF has been made a part of the Administrative Record. A description of the proposed ICDF is included in the recently signed ROD for the (INTEC). (Available from the Community Relations Office (208) 526-4700 or (800) 708-2680 or at <http://environment.inel.gov/er/erplans.htm> on the internet.)

## 4. REFERENCES

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